

What is claimed is:

1. A method for measuring usage of media data received at a user location, the media data being reproducible as comprehensible images or comprehensible sounds and having ancillary codes in at least some of the media data, comprising:

receiving the media data in a monitoring device at the user location;

forming a data set in the monitoring device from the media data by including in the data set, data sufficient to decode the ancillary codes in the media data or to form a signature to identify the media data, while excluding from the data set, data required either to reproduce the comprehensible images or the comprehensible sounds;

communicating the data set to a processing system located remotely from the user location; and

at the remotely located processing system, carrying out at least one of:

- (a) detecting the ancillary codes based on the data set; and
- (b) producing a signature characterizing the media data based on the data set and matching the produced signature with a reference signature associated with identification data for the media data.

2. A method according to Claim 1, wherein forming a data set comprises transforming at least a portion of the received media data into frequency-domain data.

3. The method of Claim 2, wherein forming a data set comprises producing amplitude data for each of a plurality of frequency ranges of the frequency-domain data, each frequency range corresponding to a predetermined component of the ancillary codes.

4. The method of Claim 3, wherein the amplitude data are each formed as a ratio of amplitude data in a corresponding frequency range to a noise level based on amplitude data outside such corresponding frequency range.
5. The method of Claim 1, wherein the data set comprises data representing time-domain information.
6. The method of Claim 5, wherein the time-domain data comprises data from a frequency range narrower than a frequency range of the media data.
7. The method of Claim 1, wherein the data set comprises data representing phase information.
8. The method of Claim 1, wherein the media data comprises audio data.
9. The method of Claim 1, wherein the media data comprises video data.
10. The method of Claim 1, wherein the media data is received as acoustic energy.
11. The method of Claim 1, wherein the media data is received as electromagnetic energy.
12. The method of Claim 11, wherein the media data is received as light energy.
13. The method of Claim 1, wherein the media data is received as magnetic energy.
14. The method of Claim 1, wherein the media data is received as electrical energy.
15. The method of Claim 1, wherein detecting the ancillary codes comprises processing frequency-domain data.
16. The method of Claim 15, wherein the frequency-domain data is processed to detect components of the ancillary codes at predetermined frequencies.

17. The method of Claim 15, wherein the frequency-domain data is processed to detect code components of the ancillary codes distributed according to a frequency-hopping pattern.
18. The method of Claim 17, wherein the code components comprise pairs of frequency components modified in amplitude to encode information.
19. The method of Claim 17, wherein the code components comprise pairs of frequency components modified in phase to encode information.
20. The method of Claim 1, wherein detecting the ancillary codes comprises detecting a spread spectrum code.
21. The method of Claim 1, wherein receiving media data comprises receiving media data in a portable monitoring device carryable on the person of a user.
22. A system for measuring usage of media data received at a user location, the media data being reproducible as comprehensible images or comprehensible sounds and having ancillary codes in at least some of the media data, comprising:
 - a monitoring device at the user location and having an input to receive the media data;
 - a first processor at the user location coupled with the monitoring device to receive the media data and operative to form a data set including data sufficient to decode the ancillary codes in the media data or to form a signature to identify the media data, while excluding from the data set, data required either to reproduce the comprehensible images or the comprehensible sounds;
 - a first communications device coupled with the first processor to receive the data set and operative to communicate the data set to a processing system located remotely from the user location;

a second communications device at the processing system coupled with the first communications device to receive the data set; and

a second processor at the processing system and having an input coupled with the second communications device to receive the data set received by the second communications device, the second processor being operative to carry out at least one of:

- (a) detecting the ancillary codes based on the data set; and
- (b) producing a signature characterizing the media data based on the data set and matching the produced signature with a reference signature associated with identification data for the media data.

23. The system of Claim 22, wherein the first processor is operative to form the data set by transforming at least a portion of the received media data into frequency-domain data.

24. The system of Claim 23, wherein the processor is operative to produce amplitude data for each of a plurality of frequency ranges of the frequency-domain data, each frequency range corresponding to a predetermined component of the ancillary codes.

25. The system of Claim 24, wherein the processor is operative to form each of the amplitude data as a ratio of amplitude data in a corresponding frequency range to a noise level based on amplitude data outside such corresponding frequency range.

26. The system of Claim 22, wherein the monitoring device comprises a portable monitoring device carryable on the person of a user.

27. The system of Claim 22, wherein the first processor is operative to include time-domain data in the data set.

28. The system of Claim 27, wherein the time-domain data comprises data from a frequency range narrower than a frequency range of the media data.

29. The system of Claim 22, wherein the first processor is operative to include data representing phase information in the data set.
30. The system of Claim 22, wherein the monitoring device is operative to receive the media data as acoustic energy.
31. The system of Claim 22, wherein the monitoring device is operative to receive the media data as electromagnetic energy.
32. The system of Claim 31, wherein the monitoring device is operative to receive the media data as light energy.
33. The system of Claim 22, wherein the monitoring device is operative to receive the media data as magnetic energy.
34. The system of Claim 22, wherein the monitoring device is operative to receive the media data as electrical energy.
35. The system of Claim 22, wherein the second processor is operative to process the frequency-domain data to detect the ancillary codes.
36. The system of Claim 35, wherein the second processor is operative to process the frequency-domain data by detecting components of the ancillary codes at predetermined frequencies to detect the ancillary codes.
37. The system of Claim 35, wherein the second processor is operative to process the frequency-domain data to detect code components distributed according to a frequency-hopping pattern.
38. The system of Claim 37, wherein the second processor is operative to detect the ancillary codes by detecting pairs of frequency components modified in amplitude to encode information.
39. The system of Claim 37, wherein the second processor is operative to detect the ancillary codes by detecting pairs of frequency components modified in phase to encode identification information.

40. The system of Claim 22, wherein the second processor is operative to detect the ancillary codes in the form of spread spectrum codes.

41. A system for measuring usage of media data received at a user location, the media data being reproducible as comprehensible images or comprehensible sounds and having ancillary codes in at least some of the media data, comprising:

a communications device at a processing facility located remotely from a user location, the communications device having an input to receive a data set including data sufficient to decode the ancillary codes in the media data or to form a signature to identify the media data, while excluding data required to either reproduce the comprehensible images or the comprehensible sounds; and

a processor located at the processing facility and coupled with the communications device to receive the data set and operative to carry out at least one of:

(a) detecting the ancillary codes based on the data set; and

(b) producing a signature characterizing the media data based on the data set and matching the produced signature with a reference signature associated with identification data for the media data.

42. The system of Claim 41, wherein the processor is operative to detect the ancillary codes by processing frequency-domain data.

43. The system of Claim 42, wherein the processor is operative to detect components of the ancillary codes at predetermined frequencies to detect the ancillary codes.

44. The system of Claim 42, wherein the processor is operative to detect components of the ancillary codes distributed according to a frequency-hopping pattern.

45. The system of Claim 44, wherein the processor is operative to detect pairs of ancillary code frequency components modified in amplitude to encode information.

46. The system of Claim 44, wherein the processor is operative to detect pairs of ancillary code frequency components modified in phase to encode information.

47. The system of Claim 41, wherein the processor is operative to detect the ancillary codes in the form of spread spectrum codes.

48. A system for measuring usage of media data received at a user location, the media data being reproducible as comprehensible images or comprehensible sounds and having ancillary codes in at least some of the media data, comprising:

means for receiving the media data at the user location;

means at the user location for forming a data set from the media data by including in the data set, data sufficient to decode the ancillary codes in the media data or to form a signature to identify the media data, while excluding from the data set, data required either to reproduce the comprehensible images or the comprehensible sounds;

means for communicating the data set to a processing system located remotely from the user location; and

processing means at the processing system for carrying out at least one of:

(a) detecting the ancillary codes based on the data set; and

(b) producing a signature characterizing the media data based on the data set and matching the produced signature with a reference signature associated with identification data for the media data.

49. The system of Claim 48, wherein the means for forming a data set is operative to transform at least a portion of the received media data into frequency-domain data.

50. The system of Claim 49, wherein the means for forming a data set is operative to produce amplitude data for each of a plurality of frequency ranges of the frequency-domain data, each frequency range corresponding to a predetermined component of the ancillary codes.

51. The system of Claim 50, wherein the means for forming a data set is operative to form each of the amplitude data as a ratio of amplitude data in a corresponding frequency range to a noise level based on amplitude data outside such corresponding frequency range.

52. The system of Claim 48, wherein the means for forming the data set is operative to include data representing time-domain information therein.

53. The system of Claim 52, wherein the means for forming a data set is operative to select the time-domain data from a frequency range narrower than a frequency range of the media data.

54. The system of Claim 48, wherein the means for forming a data set is operative to include data representing phase information therein.

55. The system of Claim 48, wherein the means for receiving media data is operative to receive the media data as acoustic energy.

56. The system of Claim 48, wherein the means for receiving media data is operative to receive the media data as electromagnetic energy.

57. The system of Claim 56, wherein the means for receiving media data is operative to receive the media data as light energy.

58. The system of Claim 48, wherein the means for receiving media data is operative to receive the media data as magnetic energy.

59. The system of Claim 48, wherein the means for receiving media data is operative to receive the media data as electrical energy.

60. The system of Claim 48, wherein the processing means is operative to process frequency-domain data to detect the ancillary codes.

61. The system of Claim 60, wherein the processing means is operative to detect components of the ancillary codes at predetermined frequencies to detect the ancillary codes.

62. The system of Claim 60, wherein the processing means is operative to detect code components distributed according to a frequency-hopping pattern to detect the ancillary codes.

63. The system of Claim 62, wherein the processing means is operative to detect the ancillary codes by detecting pairs of frequency components modified in amplitude to encode information.

64. The system of Claim 62, wherein the processing means is operative to detect the ancillary codes by detecting pairs of frequency components modified in phase to encode information.

65. The system of Claim 48, wherein the processing means is operative to detect a spread spectrum code as the ancillary code.

66. The system of Claim 48, wherein the means for receiving the media data comprises a portable monitoring device carryable on the person of an audience member.

67. A system for measuring usage of media data received at a user location, the media data being reproducible as comprehensible images or comprehensible sounds and having ancillary codes in at least some of the media data, comprising:

means for receiving a data set at a processing system located remotely from the user location, the data set including data sufficient to decode the ancillary codes in the media data or to form a signature characterizing the media data, while excluding data required either to reproduce the comprehensible images or the comprehensible sounds; and

processing means located at the processing system for carrying out at least one of:

- (a) detecting the ancillary codes based on the data set; and
- (b) producing a signature characterizing the media data and matching the produced signature with a reference signature associated with identification data for the media data.

68. The system of Claim 67, wherein the processing means comprises means for processing frequency-domain data to detect the ancillary codes.

69. The system of Claim 68, wherein the processing means is operative to process the frequency-domain data to detect components of the ancillary codes at predetermined frequencies.

70. The system of Claim 68, wherein the processing means is operative to process the frequency-domain data to detect components of the ancillary codes distributed according to a frequency-hopping pattern.

71. The system of Claim 70, wherein the processing means is operative to detect pairs of ancillary code frequency components modified in amplitude to encode information.

72. The system of Claim 70, wherein the processing means is operative to detect pairs of ancillary code frequency components modified in phase to encode information.

73. The system of Claim 67, wherein the processing means is operative to detect the ancillary codes in the form of spread spectrum codes.

74. A method for measuring usage of media data received at a user location, the media data being reproducible as comprehensible images or comprehensible sounds and having ancillary codes in at least some of the media data, comprising:

receiving a data set at a processing system located remotely from the user location, the data set including data sufficient to decode the ancillary

codes in the media data or to form a signature to identify the media data, while excluding data required either to reproduce the comprehensible images or the comprehensible sounds; and

at the remotely located processing system, carrying out at least one of

- (a) detecting the ancillary codes based on the data set; and
- (b) producing a signature characterizing the media data and matching the produced signature with a reference signature associated with identification data for the media data.

75. The method of Claim 74, wherein detecting the ancillary codes comprises processing frequency-domain data.

76. The method of Claim 75, wherein the frequency-domain data is processed to detect components of the ancillary codes at predetermined frequencies.

77. The method of Claim 75, wherein the frequency-domain data is processed to detect components of the ancillary codes distributed according to a frequency-hopping pattern.

78. The method of Claim 77, wherein the code components comprise pairs of frequency components modified in amplitude to encode information.

79. The method of Claim 77, wherein the code components comprise pairs of frequency components modified in phase to encode information.

80. The method of Claim 74, wherein detecting the ancillary codes comprises detecting a spread spectrum code.

81. A method for measuring usage of media data received at a user location, comprising:

receiving media data representing information in a monitoring device at the user location;

forming a data set in the monitoring device representing some, but not all, of the information represented by the media data;

communicating the data set to a processing system located remotely from the user location; and

at the processing system, carrying out at least one of:

(a) detecting an ancillary code for the media data based on the data set; and

(b) obtaining identification data for the media data by producing a signature for the media data based on the data set and matching the produced signature with a reference signature associated with the identification data.

82. The method of claim 81 wherein forming a data set comprises transforming at least a portion of the received media data into frequency-domain data.

83. The method of claim 82, wherein forming a data set comprises producing amplitude data for each of a plurality of frequency ranges of the frequency-domain data, each frequency range corresponding to a predetermined code component.

84. The method of claim 83, wherein the amplitude data are each formed as a ratio of amplitude data in a corresponding frequency range to a noise level based on amplitude data outside such corresponding frequency range.

85. The method of claim 81, wherein receiving media data comprises receiving media data in a portable monitoring device carryable on the person of a user.

86. The method of claim 81, wherein detecting an identification code comprises processing frequency-domain data.

87. The method of claim 86, wherein the frequency-domain data is processed to detect components of the identification code at predetermined frequencies.

88. A method for measuring usage of media data representing information and received at a user location, comprising:

receiving a data set at a processing system located remotely from the user location, the data set representing some, but not all, of the information represented by the media data; and

at the processing system, carrying out at least one of:

(a) detecting an ancillary code for the media data based on the data set; and

(b) obtaining identification data for the media data by producing a signature for the media data based on the data set and matching the produced signature with a reference signature associated with the identification data.

89. The method of Claim 88, wherein detecting an identification code comprises processing frequency-domain data.

90. The method of Claim 89, wherein the frequency-domain data is processed to detect components of the identification code at predetermined frequencies.

91. A system for measuring usage of media data representing information received at a user location, comprising:

means for receiving a data set at a processing system located remotely from the user location, the data set representing some, but not all, of the information represented by the media data; and

processing means located at the processing system, for carrying out at least one of:

(a) detecting an ancillary code for the media data based on the data set; and

(b) obtaining identification data for the media data by producing a signature for the media data based on the data set and matching the produced signature with a reference signature associated with the identification data.

92. The system of Claim 91, wherein the processing means is operative to process frequency-domain data to detect the identification code.

93. The system of Claim 92, wherein the processing means is operative to process the frequency-domain data to detect components of the identification code at predetermined frequencies.

94. A system for measuring usage of media data received at a user location, comprising:

means for receiving media data representing information at the user location;

data set forming means at the user location for forming a data set representing some, but not all, of the information represented by the media data;

means for communicating the data set to a processing system located remotely from the user location; and

processor means at the processing system, for carrying out at least one of:

(a) detecting an ancillary code for the media data based on the data set; and

(b) obtaining identification data for the media data by producing a signature for the media data based on the media data and matching the produced signature with a reference signature associated with the identification data.

95. The system of Claim 94, wherein the data set forming means is operative to form the data set by transforming at least a portion of the received media data into frequency-domain data.

96. The system of Claim 95, wherein the data set forming means is operative to transform at least a portion of the received media data by producing amplitude data for each of a plurality of frequency ranges of the frequency-domain data, each frequency range corresponding to a predetermined code component.

97. The system of Claim 96, wherein the data set forming means is operative to form the amplitude data each as a ratio of amplitude data in a corresponding frequency range to a noise level based on amplitude data outside such corresponding frequency range.

98. The system of Claim 97, wherein the means for receiving media data comprises a portable device carryable on the person of a user.

99. The system of Claim 94, wherein the processor means is operative to detect the identification code by processing frequency-domain data.

100. The system of Claim 99, wherein the processor means is operative to process the frequency-domain data to detect components of the identification code at predetermined frequencies.

101. A system for measuring usage of media data representing information received at a user location, comprising:

 a communications device at a processing facility located remotely from the user location having an input to receive a data set representing some, but not all, of the information represented by the media data; and

 a processor located at the processing facility and coupled with the communications device to receive the data set and operative to carry out at least one of:

(a) detecting an ancillary code for the media data based on the data set; and

(b) obtaining identification data for the media data by producing a signature for the media data based on the data set and matching the produced signature with a reference signature associated with the identification data.

102. The system of Claim 101, wherein the processor is operative to detect the identification code by processing frequency-domain data.

103. The system of Claim 101, wherein the processor is operative to process the frequency-domain data to detect components of the identification code at predetermined frequencies.

104. A system for measuring usage of media data received at a user location, comprising:

a monitoring device at the user location and having an input to receive media data representing information;

a first processor at the user location coupled with the monitoring device to receive the media data and operative to form a data set representing some, but not all, of the information represented by the media data;

a first communications device coupled with the first processor to receive the data set and operative to communicate the data set to a processing system located remotely from the user location;

a second communications device at the processing system coupled with the first communications device to receive the data set; and

a second processor at the processing system and having an input coupled with the second communications device to receive the data set received by the second communications device, the second processor being operative to carry out at least one of:

(a) detecting an ancillary code for the media data based on the data set; and

(b) obtaining identification data for the media data by producing a signature for the media data based on the data set and matching the produced signature with a reference signature associated with the identification data.

105. The system of Claim 104, wherein the first processor is operative to form the data set by transforming at least a portion of the received media data into frequency-domain data.

106. The system of Claim 105, wherein the first processor is operative to form the data set by producing amplitude data for each of a plurality of frequency ranges of the frequency-domain data, each frequency range corresponding to a predetermined component of the identification code.

107. The system of Claim 106, wherein the first processor is operative to form each of the amplitude data as a ratio of amplitude data in a corresponding frequency range to a noise level based on amplitude data outside such corresponding frequency range.

108. The system of Claim 104, wherein the monitoring device comprises a portable monitoring device carryable on the person of a user.

109. The system of Claim 104, wherein the second processor is operative to detect the identification code by processing frequency-domain data.

110. The system of Claim 109, wherein the second processor is operative to process the frequency-domain data to detect components of the identification code at predetermined frequencies.